

WHAT IS CLAIMED IS:

1. A storage phosphor imaging system comprising:
a source for producing stimulating radiation directed to a storage phosphor storing a latent image;
a resonant microcavity converter for converting emitted radiation from said storage phosphor to radiation at a longer wavelength than said emitted radiation but with an angular intensity distribution that is substantially narrower than a Lambertian distribution; and
a detector for detecting said longer wavelength radiation.
2. The system of claim 1 including a light collector located to collect light from said converter and directing it to said detector.
3. The system of claim 2 wherein said light collector is a light-pipe guide.
4. The system of claim 2 including one of a cylindrical lens or array of lenses for gathering and redirecting radiation from said microcavity into said light collector.
5. The system of claim 1 wherein said converter is located in close proximity to and spans the width of a storage phosphor and including a scanner for scanning a beam of stimulating radiation from said source in a line scan of said phosphor, said stimulating radiation passing through said converter.
6. The system of claim 1 wherein said converter is coextensive in size with said storage phosphor and located in close proximity thereto.
7. The system of claim 1 wherein said converter includes:
 - a) a substrate;

- b) a bottom dielectric stack reflective to light over a predetermined range of wavelengths and being disposed over the substrate;
- c) an active region for producing microcavity emission;
- d) a top dielectric stack spaced from the bottom dielectric stack and reflective to light over a predetermined range of wavelengths; and
- e) the active region includes one or more periodic gain region(s) and spacer layers disposed on either side of the periodic gain region(s) and arranged so that the periodic gain region(s) is aligned with the antinodes of the device's standing wave electromagnetic field.

8. The system of claim 7 wherein stimulated emission light is transmitted and introduced into the active region through at least one of the dielectric stacks.

9. The system of claim 7 wherein one or more periodic gain region(s) is a combination of an organic host material and a dopant and the spacer layers are substantially transparent to stimulated emission light and microcavity emission light.

10. The system of claim 9 wherein the host material is aluminum tris(8-hydroxyquinoline), the dopant is [10-(2-benzothiazolyl)-2,3,6,7-tetrahydro-1,1,7,7-tetramethyl-1H,5H,11H-[1]Benzopyrano[6,7,8-ij]quinolizin-11-one], and the spacer layers includes 1,1-Bis-(4-bis(4-methyl-phenyl)-amino-phenyl)-cyclohexane or silicon dioxide.

11. The system of claim 7 wherein the periodic gain region includes polymeric materials.

12. The system of claim 1 wherein the emission from said resonant microcavity converter has an angular intensity distribution with a full-width-at-half-maximum of less than or about ± 45 degrees.

13. The system of claim 1 wherein the emission from said resonant microcavity converter has an angular intensity distribution with a full-width-at-half-maximum of less than or about ± 30 degrees.